

Appl. No.: 10/706,273
Amdt. Dated: March 29, 2005
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Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claims 1-9 (cancelled)

Claim 10 (previously presented) A magnesium die casting system for in-line recycling of scrap magnesium, the system comprising a re-melt furnace in fluid communication with a casting furnace in fluid communication with a pump for supplying molten magnesium to a die casting machine that produces solid castings and solid scrap, the solid scrap re-introduced into the re-melt furnace, the re-melt furnace comprising a plurality of heating zones, each heating zone comprising a heat transfer material, and wherein a different heat transfer material is used in one or more zones.

Claim 11 (previously presented) The magnesium die casting system of claim 10, wherein each heating zone includes one or more heating elements and wherein the heating elements are located adjacent the heat transfer material.

Claim 12 (previously presented) A magnesium die casting system for in-line recycling of scrap magnesium, the system comprising a re-melt furnace in fluid communication with a casting furnace in fluid communication with a pump for supplying molten magnesium to a die casting machine that produces solid castings and solid scrap, the solid scrap re-introduced into the re-melt furnace, the re-melt furnace comprising a plurality of temperature sensors located at a plurality of positions within the furnace.

Claim 13 (original) The magnesium die casting system of claim 12, wherein the temperature sensors are located within different regions within the re-melt furnace.

Claims 14-20 (cancelled)

Claim 21 (currently amended) A magnesium die casting system that includes in-line recycling of scrap magnesium, the system comprising:

- a) a re-melt furnace, the re-melt furnace comprising a crucible containing molten magnesium stratified into three regions: an upper region; a lower region; and, a clean region between the upper and lower regions;
- b) a casting furnace in fluid communication with the re-melt furnace by siphoning through a U-shaped tube having an inlet located within the clean region and an outlet located within the casting furnace;